

# Why bring ice to Alberta?

There are 12,000-year-old secrets trapped inside, that's why

By Geoff McMaster on March 27, 2015



Team of researchers extracting ice cores

Photo credit: Doug Clark

The University of Alberta is working to adopt a national collection of glacier ice, some of it dating back more than 12,000 years.

While it may seem strange to bring ice to Alberta, this is not your average cube. The samples contain an invaluable record of the Earth's geological and atmospheric history. They also may hold clues to understanding modern-day climate change.

"Ice cores are one of the best repositories of information about past climates and past environments," says UAlberta glaciologist Martin Sharp. "There's a lot to be learned from those records. And because of climate change, those records are being eroded and they're disappearing."

The cylindrical ice shafts in the Geological Survey of Canada collection, now held in Ottawa, stretch more than 1,000 metres laid out end to end. Collected over more than four decades, they hold a wealth of information from High Arctic glaciers and frozen mountaintops, including Canada's highest peak, Mount Logan, as well as Ellesmere, Baffin and Devon islands.

Some of the samples have never been analyzed, and new technology holds the promise of finding out more even from the ancient ice. "The techniques that are available for analyzing ice cores, and the range of information that can be extracted from them now, is radically different from

what existed at the time the cores were collected," says Sharp.

The layers in ice cores work much like tree rings, revealing changes in the earth's atmosphere over time. By examining the chemistry of pockets of ancient air trapped in the ice, scientists can determine key climate factors such as temperature and concentrations of carbon dioxide and methane. This could shed light on climate change today.

Another important type of information scientists can extract from the ice samples has to do with "legacy contaminants," Sharp says. They're a danger posed by global warming that isn't often discussed — the many toxic materials that will be released into the water supply as the glaciers and ice caps melt. (Watch the video.)

John England, professor emeritus in the Department of Earth and Atmospheric Sciences, calls the ice core collection "an exceedingly rich and diverse record of environmental change" that would attract people from around the world. "It gives us substance — like gold bullion."

As one of the world's northernmost research universities, UAlberta has long been home to prominent and wide-ranging research on the Canadian Arctic and circumpolar regions around the globe.

Source: New Trail

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